



NMDCAT

SUPER FINAL PAPER-5

Total MCQs: 200

Max. Marks: 200

BIOLOGY

- Q.1** In fluid mosaic model of plasma membrane:
- Upper layer is non-polar and hydrophilic
 - Upper layer is polar and hydrophobic
 - Phospholipid form a bi-molecular layer in middle part
 - Proteins form a middle layer
- Q.2** Nuclear envelope is derived from:
- RER
 - SER
 - Membrane of Golgi complex
 - Microtubules
- Q.3** In which of the following does active transport take place?
- Pumps
 - Gates
 - Facilitated diffusion
 - Diffusion
- Q.4** Structure of nuclear membrane helps in:
- Organization of spindles
 - Synapsis of homologous chromosomes
 - Nucleo-cytoplasmic exchange of material
 - Anaphasic separation of daughter chromosomes
- Q.5** Which one is semi-autonomous organelle?
- Peroxisomes
 - Golgi bodies
 - Endoplasmic reticulum
 - Mitochondria
- Q.6** Animal cells differs from plant cells in not having the:
- Cell wall
 - Plastids
 - Glyoxysomes
 - All A, B, C
- Q.7** It is not a chemical component of primary cell wall of plants:
- Cellulose
 - Pectin compounds
 - Silica
 - Hemicellulose
- Q.8** Starch, glycogen and cellulose share which one of the properties?
- Polysaccharides with α -1, 4 linkage of monomer
 - Branched polysaccharides
 - Polysaccharides of glucose
 - Originated from plants
- Q.9** Which one of the following is an example of reducing sugar?
- Lactose
 - Sucrose
 - Cellulose
 - Starch
- Q.10** Phospholipids are:
- Amphipathic
 - Amphibolic
 - Hydrophobic
 - Hydrophilic
- Q.11** A DNA template was found to contain 29% of adenine bases, the percent of G+C, in this template will be:
- 58%
 - 42%
 - 71%
 - 29%
- Q.12** The two strands of the DNA double helix are held together by:
- Hydrogen bonds
 - Hydrophobic bonds
 - Peptide bonds
 - Phosphodiester bonds
- Q.13** All of the following correctly describes the active site of an enzyme except:
- It is small relative to the entire enzyme
 - It is two dimensional in structure
 - Specificity is defined by arrangement of certain atoms
 - Initially binds substrates by weak attractions
- Q.14** A non-protein organic part attached firmly by a covalent linkage to the apoenzyme is called:



a. Co-enzyme
c. Activator

b. Prosthetic group
d. Co-factor

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- Q.15** An example of competitive inhibition of an enzyme is the inhibition of:
a. Succinic dehydrogenase by malonic acid b. Cytochrome oxidase by cyanide
c. Hexokinase by glucose 6 phosphate d. Carbonic anhydrase by CO₂
- Q.16** Which one of the following is not a limiting factor for photosynthesis?
a. Oxygen b. Chlorophyll
c. Carbon dioxide d. Light
- Q.17** Light reaction of photosynthesis takes place in:
a. Grana b. Glyoxisomes
c. Stroma d. Peroxisomes
- Q.18** The synthesis of ATP in photosynthesis and respiration is essentially an oxidation-reduction process involving removal of energy from:
a. Oxygen b. Cytochrome
c. Phytochrome d. Electrons
- Q.19** Which is end product of oxidative phosphorylation?
a. ATP b. NADH
c. ATP and H₂O d. Oxygen
- Q.20** All of the following are similarities between mitochondria and chloroplast except:
a. Contains battery of enzymes and cofactors b. Contains their own DNA and 70S ribosomes
c. Provide cells with ATP d. Both are involved in anabolism
- Q.21** During chemiosmosis, ATPs are formed when H⁺ move:
a. Actively from cytoplasmic matrix to inter membranous space
b. Actively from inter membranous space to cytoplasmic matrix
c. Passively from inter membranous space to mitochondrial matrix
d. Passively from mitochondrial matrix to inter membranous space
- Q.22** Metabolic enzymes are absent in:
a. Fungi b. Bacteria
c. Viruses d. Algae
- Q.23** Which of following is present in all viruses?
a. DNA b. RNA
c. Proteins d. Envelop
- Q.24** It correctly explains the feature of all viruses:
a. Facultative intracellular parasites b. Obligate intracellular parasites
c. Facultative intercellular parasites d. Obligate intercellular parasites
- Q.25** Which of these viruses contain a single stranded RNA molecule?
a. Bacteriophages b. HIV
c. Herpes d. Small pox
- Q.26** Bacteria differ from fungi in that they do not have:
a. DNA b. RNA
c. Cell wall d. Well defined nucleus
- Q.27** Some bacteria have capsule outside cell wall, it is made of:
a. Cellulose b. Lipids
c. Glycolipids d. Mucopolysaccharides
- Q.28** Entamoebae is a:
a. Free living fresh water amoeba b. Free living soil inhabiting amoeba
c. Free living marine water amoeba d. Parasitic amoeba
- Q.29** All of these show ecological importance of fungi except:
a. Decomposition b. Bioremediation
c. Genetic engineering d. Recycling
- Q.30** In the absence of decomposers functioning of ecosystem is adversely affected due to:
a. Blocking of mineral cycling
b. Blocking of solar energy to herbivores
c. Blocking of energy
d. Increase in the rate of decomposition by other organisms
- Q.31** Land habitat is dominated most successfully by:



- a. Gymnosperms
- c. Pteridophytes

- b. Angiosperms
- d. Bryophytes

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- Q.32

Respiration occurs through organs like gills, book lungs or tracheal system found in phylum:

a. Mollusca

b. Annelida

c. Arthropoda

d. Echinodermata
- Q.33

Mesoderm gives rise to all of the following systems except:

a. Muscular system

b. Skeletal system

c. Reproductive system

d. Nervous system
- Q.34

Where is apoplastic movement shifted to symplastic pathway?

a. Cortex

b. Endodermis

c. Pericycle

d. Xylem
- Q.35

Which of the following is correctly matched with respect to heart?

	Valves	Septa	Chambers
a.	4	4	4
b.	2	4	2
c.	2	2	2
d.	4	2	4

- Q.36

Structure of capillaries resembles with which layer of arteries and veins?

a. Outer layer

b. Middle elastic layer

c. Middle muscular layer

d. Inner layer
- Q.37

Capillaries usually pick up all of the following from extracellular fluid of skeletal muscle cell except?

a. Nitrogenous wastes

b. Carbon dioxide

c. Lactic acid

d. Oxygen
- Q.38

Lymph nodes are drained by:

a. Single afferent vessel

b. Many afferent vessels

c. Single efferent vessel

d. Many efferent vessels
- Q.39

The valves present in human heart actually control:

a. Velocity of blood flow

b. Direction of blood flow

c. Blood pressure

d. Volume of blood flow
- Q.40

The T-cells are converted into immuno-competent cells by:

a. Bone marrow

b. Spleen

c. Thymus

d. Iron
- Q.41

Adaptive immunity constitutes:

a. First line of defense

b. Third line of defense

c. Second line of defense

d. Innate defense lines
- Q.42

The plasma protein which leaks through the capillary pore to interstitial fluid finally returns to circulation by:

a. Blood capillaries

b. Lymph vessels

c. Renal portal vessels

d. Bone marrow
- Q.43

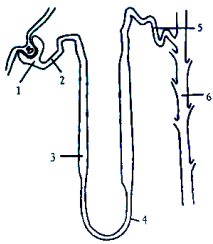
Which of the following component of blood does not enter into the nephron?

a. Water

b. Glucose

c. Plasma protein

d. Urea
- Q.44

The diagram represents a nephron:
 

Normally the filtrate present at point '3' can have all of the following except:

a. Glucose

b. Na⁺

c. H₂O

d. Urea

- Q.45

With respect to the blood, the mammalian kidney does not have an important role in maintaining which of the following?

a. Water content

b. Blood pressure



- c. Salt levels
d. Glucose levels
- Q.46** Heart pumps 70ml of blood in one beat. What will be the amount of blood received by kidneys after one cardiac beat?
a. 7 ml
b. 14 ml
c. 20 ml
d. 24 ml
- Q.47** Which of the following glands play a major role in non-shivering thermogenesis?
a. Pancreas
b. Thyroid gland
c. Parathyroid glands
d. Adrenal glands
- Q.48** The functional unit of skeletal muscles is actually a region of:
a. Myofibrils
b. Myofilaments
c. A band
d. I band
- Q.49** According to sliding filament model, which of the following will not change in an A-band of a contracted sarcomere as compared to relaxed state?
a. Position of thin filaments
b. Length of H-zone
c. State of cross bridges
d. Presence of M-line
- Q.50** Which of the following are involved in the formation of triads?
a. Sarcolemma and sarcoplasmic reticulum
b. Sarcolemma and myofibrils
c. Sarcolemma and myofilaments
d. Sarcoplasmic reticulum and myofilaments
- Q.51** Which of the following statement is incorrect for node of Ranvier?
a. These are related with myelin sheath
b. These are formed by Schwann cells
c. These are found around all neurons
d. These allow salutatory impulse
- Q.52** A bipolar neuron has:
a. 2 axons and 1 dendrite
b. 2 axons and 2 dendrites
c. 2 dendrites and 1 axon
d. 1 dendrite and 1 axon
- Q.53** In the resting state of the neurolemma, diffusion due to concentration gradients, if allowed would drive:
a. K^+ and Na^+ out of the cell
b. Na^+ into the cell
c. Na^+ out of the cell
d. K^+ into the cell
- Q.54** Deficiency of which of the following causes low plasma Na^+ , high K^+ and increased blood pressure?
a. Thyroxin
b. Adrenaline
c. Cortisol
d. Aldosterone
- Q.55** Daily rhythms are usually associated with:
a. Hypothalamus
b. Pituitary
c. Thymus
d. Pineal
- Q.56** Blood calcium level can be increased by the administration of:
a. Glucagon
b. Thyroxin
c. Parathormone
d. Calcitonin
- Q.57** Which of the following is correct arrangement of phases before and after ovulation?
- | | Before | After |
|----|---------------|------------|
| a. | Proliferative | Follicular |
| b. | Luteal | Menstrual |
| c. | Proliferative | Secretory |
| d. | Menstrual | Follicular |
- Q.58** During menstrual cycle of 28 days, proliferative phase ends at:
a. 13th day
b. 15th day
c. 27th day
d. 21th day
- Q.59** LH surge causes:
a. Rupture of graffian follicle
b. Release of oogonium
c. Endometrial shedding
d. Maturation of follicle
- Q.60** Events that occur during regulation of blood glucose are:
i) Increase in blood glucose
ii) Increase in circulating glucagon
iii) Release of glucose from glycogen
iv) Decrease in blood glucose level



Identify the correct order of these events:

a. iv \rightarrow iii \rightarrow ii \rightarrow i

b. iii \rightarrow i \rightarrow ii \rightarrow iv

c. iv \rightarrow ii \rightarrow iii \rightarrow i

d. I \rightarrow ii \rightarrow iv \rightarrow iii

Q.61 Genes in an individual for a particular trait constitute:

a. Genotype

b. Gene pool

c. Genome

d. Gene frequency

Q.62 With a genotype AaBb the fraction of gametes that will be 'ab' is:

a. $\frac{1}{16}$

b. $\frac{1}{2}$

c. $\frac{1}{4}$

d. $\frac{3}{4}$

Q.63 When two organisms each hybrid for a given trait are crossed a large progeny will show which one of the following percentage of hybrids:

a. 75%

b. 25 %

c. 50%

d. 80 %

Q.64 Which of the following genotypes cannot occur amongst the offspring from a mating between a person of blood group A and a person of blood group B:

a. IAIA

b. IBi

c. IAIB

d. ii

Q.65 Sex chromosomes in human male are:

a. Homologous and homomorphic

b. Non-homologous and homomorphic

c. Homologous and heteromorphic

d. Non-homologous and heteromorphic

Q.66 If a carrier woman for haemophilia is married to a normal man, then all of the following combinations can exist in progeny except:

a. XHXH

b. XHY

c. XhY

d. XhXh

Q.67 It is the basic unit of eukaryotic chromosome:

a. Centromere

b. Chromatid

c. Nucleosome

d. Centrosome

Q.68 Primary structure of DNA is maintained through:

a. Hydrogen bond

b. Ionic bond

c. Covalent bond

d. Hydrophobic interaction

Q.69 DNA double helix is opened by:

a. Primase

b. DNA polymerase

c. Helicase

d. Ligase

Q.70 Transcription starts at the RNA polymerase binding site called:

a. Primer

b. Promoter

c. Starter

d. Start Codon

Q.71 Codon is the triplet code present on:

a. DNA

b. tRNA

c. mRNA

d. rRNA

Q.72 Which strand elongates towards the replication fork?

a. Parent strand

b. Lagging strand

c. Leading strand

d. Template strand

Q.73 Replacement of a purine nucleotide with a pyrimidine nucleotide is:

a. Chromosomal aberration

b. Point mutation

c. Transposition

d. Natural selection

Q.74 Evolution of different species in a given area starting from a point and spreading to other geographical areas is known as:

a. Adaptive radiation

b. Migration

c. Natural selection

d. Divergent evolution

Q.75 Analogous structures are a result of:

a. Divergent evolution

b. Shared ancestry

c. Convergent evolution

d. Stabilizing selection

Q.76 All of the following are palindromic sequences attacked by restriction endonuclease except:



a. TTAA
c. GATC

b. CCAA
d. GAATTC

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- Q.77** In a lambda phage, which of the following will actually serve as vector:
- a. DNA
 - b. Protein tail
 - c. Protein capsid
 - d. Envelop
- Q.78** All of the following constitute expression system for a foreign gene in biotechnology except:
- a. Viruses
 - b. Plants
 - c. Bacteria
 - d. Animals
- Q.79** All of the following methods are used to introduce gene into the cells except:
- a. Microinjection
 - b. Vortex method
 - c. Particle gun method
 - d. Sanger's method
- Q.80** Restriction endonucleases:
- a. Are used in genetic engineering for ligating two DNA molecules
 - b. Are used for in vitro DNA synthesis
 - c. Are synthesized by bacteria as part of their defense mechanism
 - d. Are present in mammalian cells for degradation of DNA when the cell die



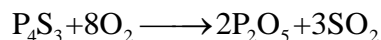
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CHEMISTRY

Q.81 Phosphorus sulfide (P_4S_3) is burnt completely to produce P_2O_5 and SO_2 . How many moles of oxygen gas are needed to burn half mole of P_4S_3



- a. 6
c. 4
- b. 8
d. 3.5

Q.82 The number of gram molecules of oxygen in 6.02×10^{24} CO molecules is

- a. 1 gm molecules
c. 5 gm molecules
- b. 2 gm molecules
d. 8 gm molecules

Q.83 The elemental substance is

- a. CO
c. Water
- b. Aq. NaCl
d. Gold

Q.84 The equation applicable at extremely low temperature and high pressure on gases is

- a. Ideal gas equation
c. Kinetic equation of gas
- b. Van der Waals's equation
d. Arrhenius equation

Q.85 Which of the followings is not a crystalline solid

- a. Graphite
c. Rhombic sulphur
- b. Crystal glass
d. Grey tin

Q.86 A student determined the value of the rate constant k for a chemical reaction at several different temperatures. Which of the following graphs of the student's data would give a straight line

- a. k versus T
c. k versus $(1/T)$
- b. $\ln k$ versus $(1/T)$
d. $\ln k$ versus E_a

Q.87 The atomic number of an element 'M' is 26. How many electrons are present in the M-shell of the element in its ground state

- a. 11
c. 15
- b. 14
d. 16

Q.88 Among the following species, identify the isostructural pairs, NF_3 , NO_3^- , BF_3 , H_3O^+ , NH_3

- a. $[NF_3, NO_3^-]$ and $[BF_3, H_3O^+]$
c. $[NF_3, H_3O^+]$ and $[NO_3^-, BF_3]$
- b. $[NF_3, NH_3]$ and $[NO_3^-, H_3O^+]$
d. $[NF_3, H_3O^+]$ and $[NH_3, BF_3]$

Q.89 Bonds present in $CuSO_4 \cdot 5H_2O$ is

- a. Electrovalent and covalent bonds
b. Electrovalent and coordinate covalent bonds
c. Covalent and coordinate bonds
d. Electrovalent, covalent and coordinate covalent bonds

Q.90 Which one of the following is exothermic process

- a. Boiling
c. Melting
- b. Condensation
d. Sublimation

Q.91 What does it mean if the ΔH value for a chemical reaction is positive?

- a. Reactants have more potential energy than product
b. Potential energy is decreasing in the system
c. Products have less potential energy than reactants
d. Reactants have less potential energy than products

Q.92 The most easily oxidizable species amongst the followings is

- a. Ca
c. Al
- b. F2
d. H2

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- Q.93** The cell reaction of the galvanic cell $\text{Cu}_{(s)}|\text{Cu}^{2+}_{(aq)}||\text{Hg}^{2+}_{(aq)}|\text{Hg}_{(l)}$ is
- $\text{Hg} + \text{Cu}^{2+} \longrightarrow \text{Hg}^{2+} + \text{Cu}$
 - $\text{Cu} + \text{Hg} \longrightarrow \text{CuHg}$
 - $\text{Hg} + \text{Cu}^{2+} \longrightarrow \text{Cu}^{+} + \text{Hg}^{+}$
 - $\text{Cu} + \text{Hg}^{2+} \longrightarrow \text{Cu}^{2+} + \text{Hg}$
- Q.94** Which of the following represents acidic buffer solution
- 1 M NH_4OH + 1 M NH_4Cl
 - 1 M CH_3COOH + 0.5 M NaOH
 - 1 M CH_3COOH + 1 M NaCl
 - 1 M CH_3COOH + 1 M NH_4Cl
- Q.95** $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$ units of given reaction are
- mol+2, dm-6
 - mol+2, dm-3
 - mol-1, dm+3
 - mol-2, dm+6
- Q.96** The rate laws for certain enzyme-activated reactions in your body have a specific rate constant k, with units of $\text{mol dm}^{-3}\text{s}^{-1}$. What is the overall order of these reactions
- 0
 - 2
 - 1
 - Cannot be determined
- Q.97** The internal energy change when a system goes from state A to B is 40 kJ/mol. If the system goes from A to B by a reversible path and returns to state A by an irreversible path what would be the net change in internal energy
- = 40 kJ
 - < 40 kJ
 - > 40 kJ
 - Zero
- Q.98** Which species has largest radius
- Be^{2+}
 - N^{3-}
 - O^{2-}
 - F^{-}
- Q.99** Correct order of melting point of IIA elements are
- $\text{Be} > \text{Mg} > \text{Ca}$
 - $\text{Sr} < \text{Ba} < \text{Ra}$
 - $\text{Be} > \text{Mg} < \text{Ca}$
 - $\text{Mg} < \text{Sr} < \text{Ca}$
- Q.100** The coordination number of Fe in $\text{K}_4[\text{Fe}(\text{CN})_6]$ is
- 4
 - 3
 - 5
 - 6
- Q.101** For maximum yield of NH_3 , catalyst used at 300atm/400°C is
- Fe pieces embedded in $\text{MgO} + \text{Al}_2\text{O}_3 + \text{SiO}_2$
 - Ni – Al
 - Pt
 - Fe_2O_3
- Q.102** The compound which has cis-trans isomers is
- 1,1 – Dichloroethene
 - 1 – Butene
 - 1,2 – Dichloroethene
 - 1 – Pentene
- Q.103** The benzene ring activating group is
- Amine group
 - Chloro group
 - Nitro group
 - Aldehydic group
- Q.104** Hybridization state of central carbon in secondary carbocation is
- sp
 - sp^3
 - dsp^2
 - sp^2
- Q.105** Alkanes mainly undergo _____ reactions
- Free radical substitution
 - Electrophilic addition
 - Ionic elimination
 - Nucleophilic addition
- Q.106** The characteristic reactions of alkenes are
- Electrophilic addition
 - Free radical substitution
 - Nucleophilic addition
 - Electrophilic substitution
- Q.107** Actual product formed by oxidation of toluene and ethyl benzene is
- Maleic acid
 - Benzoic acid
 - Glyoxal
 - Acetic acid
- Q.108** Which one is most likely to give SN_1 reaction
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Br}$
 - $(\text{CH}_3)_2\text{CHCH}_2\text{Br}$
 - $\text{CH}_3\text{CH}_2\text{CHBrCH}_3$
 - $(\text{CH}_3)_3\text{CBr}$
- Q.109** The alkyl halide is converted into an alcohol by



- a. Substitution
c. Elimination
- Q.110** $2\text{CH}_3 - \text{CH}_2 - \text{Cl} \xrightarrow[\text{ether}]{2\text{Na}} ?$
- a. Ethane
c. Ethene
- Q.111** The elements _____ and _____ can form polymeric halides and amphoteric oxides in their respective periods due to moderate values of their electronegativities
- a. Be and B
c. B and C
- Q.112** Reduction of benzene by using Pt occur in the presence of
- a. CH_3COOH
c. HCHO
- Q.113** The compound on oxidation gives a ketone. The original compound is
- a. Tertiary alcohol
c. Secondary alcohol
- Q.114** Which one of the following compounds will be most readily attacked by an electrophile
- a. Phenol
c. Benzene
- Q.115** Denatured alcohol is
- a. Methylated spirit
c. Undistilled ethanol
- Q.116** Which of the following orders of relative strengths of acids is correct
- a. $\text{ClCH}_2\text{COOH} > \text{FCH}_2\text{COOH} > \text{BrCH}_2\text{COOH}$
b. $\text{ClCH}_2\text{COOH} > \text{BrCH}_2\text{COOH} > \text{FCH}_2\text{COOH}$
c. $\text{BrCH}_2\text{COOH} > \text{ClCH}_2\text{COOH} > \text{FCH}_2\text{COOH}$
d. $\text{FCH}_2\text{COOH} > \text{ClCH}_2\text{COOH} > \text{BrCH}_2\text{COOH}$
- Q.117** The ester $\text{CH}_3\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_3$ is responsible for the aroma of apples. When this ester is hydrolyzed by acid in the stomach, what is the formula of the organic acid produced
- a. CH_3COOH
c. $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$
- Q.118** Which of the following produces carboxylic acid when reacted with alkene
- a. $\text{K}_2\text{Cr}_2\text{O}_7 / \text{H}^+$
c. Hot $\text{KMnO}_4 / \text{H}^+$
- Q.119** Which acid is used for the preparation of Fehling's solution
- a. Tartaric acid
c. Citric acid
- Q.120** Alkanoic acid and alkyl alkanoate are _____ isomer of each other
- a. Chain
c. Positional
- Q.121** According to quantum theory, the correct relationship/s is/are
- a. $E = h\nu$
c. $E = hc/\lambda$
- Q.122** The photon of energy is released when an electron in hydrogen atom jumps from
- a. $n = 1$ to $n = 2$
c. $n = 1$ to $n = 3$
- Q.123** The orbital which is more diffused and largest in size is
- a. 2s
c. 3p
- Q.124** The density of CO_2 gas at 1 atm and -9°C is
- a. 2 gdm^{-3}
c. 1 gdm^{-3}
- Q.125** The correct compressibility order between different states of matter is
- a. Solids > Liquids > Gases
c. Gases > Liquids > Solids
- b. Addition
d. Dehydrohalogenation
- b. Butane
d. Ethyne
- b. Mg and Al
d. Be and Al
- b. CH_3OH
d. ZnCl_2
- b. Primary alcohol
d. Carboxylic acid
- b. Nitrobenzene
d. Chlorobenzene
- b. Rectified spirit
d. Wood spirit
- b. Cold $\text{KMnO}_4 / \text{H}^+$
d. $\text{LiAlH}_4 / \text{Ether}$
- b. Malonic acid
d. Oxalic acid
- b. Functional group
d. Metamerism
- b. $E = h\nu$
d. All of these
- b. $n = 6$ to $n = 7$
d. $n = 7$ to $n = 1$
- b. 3d
d. 3s
- b. 0.75 gdm^{-3}
d. 0.25 gdm^{-3}
- b. Solids > Gases > Liquids
d. Liquids > Gases > Solids



- Q.126** Which kind of intermolecular forces are dominant in liquefied noble gases
- a. Dipole-dipole forces
 - b. Hydrogen bonding
 - c. London dispersion forces
 - d. Debye's forces

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- Q.127** The Na_2SO_4 is formed by formation of electrovalent bonds between its
a. Atoms
b. Ions
c. Molecules
d. Cations
- Q.128** $\text{PbS(s)} \rightarrow \text{Pb}^{2+}(\text{aq}) + \text{S}^{2-}(\text{aq})$
If K_{sp} is $2 \times 10^{-6} \text{ mol}^2\text{dm}^{-6}$, what is $[\text{S}^{2-}]$ in the above reaction?
a. $1 \times 10^{-3} \text{ mol dm}^{-3}$
b. $2 \times 10^{-3} \text{ mol dm}^{-3}$
c. $1.41 \times 10^{-3} \text{ mol dm}^{-3}$
d. $1 \times 10^{-6} \text{ mol dm}^{-3}$
- Q.129** Which enthalpy change is relevant in the following process?
 $\text{Na}_{(\text{s})} \rightarrow \text{Na}_{(\text{g})} \quad \Delta H = +108 \text{ kJ mol}^{-1}$
a. Enthalpy of fusion
b. Enthalpy of vaporization
c. Enthalpy of atomization
d. Enthalpy of formation
- Q.130** The correct reaction of Al metal is
a. $2\text{Al(s)} + 6\text{H}_2\text{O} \rightarrow \text{Al(OH)}_3 + 3\text{H}_2$
b. $2\text{Al(s)} + 3\text{Cl}_2 \rightarrow 2\text{AlCl}_3(\text{s})$
c. $4\text{Al(s)} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_3(\text{s})$
d. Both B and C
- Q.131** $2\text{F}^- \longrightarrow \text{F}_2$
How many electrons are written in above reaction
a. 2 electrons on right side
b. 1 electrons on right side
c. 2 electrons on left side
d. 1 electrons on left side
- Q.132** In which of the following oxidation state, the manganese ion has maximum paramagnetic character?
a. +1
b. +2
c. +7
d. +5
- Q.133** In 3d-series of transition elements, the atomic size remains almost constant along period instead of decreasing due to increases in
a. Shielding effect of d-subshell electrons
b. Unpaired d-subshell electrons
c. Atomic number
d. Atomic mass
- Q.134** The functional group of most acidic compounds containing family is
a. $-\text{COOH}$
b. $-\text{COH}$
c. $-\text{OH}$
d. $-\text{NH}_2$
- Q.135** Hydrolysis of ethane nitrile produces
a. Propanoic acid
b. Ethanoic acid
c. Ethyl amine
d. Ammonium acetate
- Q.136** An unknown compound gives positive iodoform test. It is indicated that the unknown compound is
a. A primary alcohol other than ethanol
b. An aldehyde other than ethanal
c. A methyl ketone
d. A non-methyl ketone
- Q.137** Which of the following enzyme raised in body in heart disease
a. LDH-1
b. Thrombin
c. L- Asparaginase
d. Alkaline phosphate
- Q.138** Which of the following statements is NOT correct
a. The enzymatic reaction occurs best at or around 37°C
b. Conversion of fumaric acid into maleic acid take place in the presence fumarase enzyme
c. Most enzymatic reactions are irreversible
d. Enzymes are readily in activated by exposure to ultraviolet light
- Q.139** All proteins contain the element carbon, hydrogen, oxygen and _____
a. Iron
b. Sulphur
c. Zinc
d. Nitrogen
- Q.140** $\text{Ethyne} + 2\text{HBr} \rightarrow \text{Product}$
The name of above product is
a. 1,1-Dibromoethane
b. 1,2-Dibromoethane
c. 1-bromoethene
d. 1-bromoethane



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SUPER FINAL PAPER-5

Total MCQs: 200

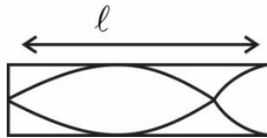
Max. Marks: 200

PHYSICS

- Q.141** Newton first law of motion is also known is
a. Law of inertia
b. Law of universal gravity
c. Law of electromagnetism
d. Law of conservation
- Q.142** For projectile motion in the absence of air resistance:
a. Vertical speed is constant
b. Horizontal acceleration is zero
c. Horizontal force is constant
d. Vertical acceleration is zero
- Q.143** The product of force and time have same unit as:
a. Angular momentum
b. momentum
c. Change in momentum
d. Both 'b' and 'c'
- Q.144** If two objects of equal masses 'm' are moving towards each other with the same speeds 'v' then what will be the total final momentum after elastic head-on collision?
a. $-mv \text{ kg/s}$
b. $2mv \text{ kg/s}$
c. $mv \text{ kg m/s}$
d. 0 kg m/s
- Q.145** Which one of the following is a greater work?
a. $+100 \text{ J}$
b. -1000 J
c. -100 J
d. $+200 \text{ J}$
- Q.146** A stone of mass 2.0 kg is dropped from a rest position above the ground where its potential energy is 100 J . What is its velocity at a height of 3.0 m above the ground?
a. 12.5 m/s
b. 9.3 m/s
c. 6.3 m/s
d. 16.0 m/s
- Q.147** In the presence of air friction, the relation for free falling body is
a. $mgh = \frac{1}{2}mv^2 - fh$
b. $mgh = \frac{1}{2}mv^2 + fh$
c. $mgh = fh - \frac{1}{2}mv^2$
d. $mgh = fg + \frac{1}{2}mv^2$
- Q.148** A body is falling from a height h . After it has fallen a height $h/4$, it will possess
a. Only potential energy
b. 75 % P.E and 25% K.E
c. Only kinetic energy
d. 25% K.E and 75 % P.E
- Q.149** A stone of mass 2 Kg tied to a string of length one meter is rotated in a circle with the other end of the string as the center. What may be the speed of the object if string can bear maximum tension 98 N
a. 3 msec^{-1}
b. 7 msec^{-1}
c. 5 msec^{-1}
d. All are possible
- Q.150** The relation between the linear velocity and angular velocity is.
a. $\vec{\omega} = \vec{r} \times \vec{v}$
b. $\vec{v} = \vec{r} \times \vec{\omega}$
c. $\frac{1}{v} = \frac{1}{\omega} \times \frac{1}{r}$
d. $\frac{1}{\omega} = \frac{1}{v} \times \frac{1}{r}$
- Q.151** A flywheel gains a speed of 540 rpm in 6 second . Its angular acceleration is
a. $3 \pi \text{ rad s}^{-2}$
b. $6 \pi \text{ rad s}^{-2}$
c. $9 \pi \text{ rad s}^{-2}$
d. $12 \pi \text{ rad s}^{-2}$
- Q.152** A point on the rim of a wheel 4 m in diameter has a velocity of 1600 cm s^{-1} . The angular velocity of the wheel is
a. 2 rad s^{-1}
b. 4 rad s^{-1}
c. 6 rad s^{-1}
d. 8 rad s^{-1}
- Q.153** A source of sound moves towards a stationary observer with a speed one third that of sound. If the frequency of the sound from the source is 100 Hz , the apparent frequency of the sound heard by the observer is
a. 67 Hz
b. 100 Hz
c. 150 Hz
d. 75 Hz



Q.154 What is the frequency of wave of sound in this closed pipe system?



a. $f = \frac{3v}{4\ell}$

b. $f = \frac{2v}{3\ell}$

c. $f = \frac{3v}{2\ell}$

d. $f = \frac{4\ell}{3v}$

Q.155 The percentage error in Newton's formula for the speed of sound in air is

a. 15%

b. 20%

c. 16%

d. 84%

Q.156 In Doppler effect if listener moves towards a stationary source then:

a. Observed frequency is greater than original frequency

b. Observed frequency is less than original frequency

c. Observed frequency is equal to original frequency

d. Observed frequency is independent of original frequency

Q.157 The bicycle pump works on the basis of:

a. 1st law of thermodynamics

b. 2nd law of thermodynamics

c. Law of conservation of energy

d. Law of entropy

$$\frac{C_v}{C_p}$$

Q.158 Ratio $\frac{C_v}{C_p}$ is

a. Less than one for monoatomic gas

b. Greater than one for diatomic gas

c. Greater than one for polyatomic gas

d. Always less than one

Q.159 If the distance between two charges becomes double then the force between them become.

a. One half

b. $\frac{1}{4}$ times

c. Double half

d. None of these

Q.160 When potential in a capacitor rises from 0 to V, then average potential difference is

a. V

b. -V

c. $\frac{V+V}{2}$

d. $\frac{V}{2}$

Q.161 On removing the dielectric from a charged capacitor, its energy stored

a. Increases

b. Remains unchanged

c. Decreases

d. None of the above

Q.162 A hollow sphere of copper is positively charged. Then the electric field inside the sphere is

a. The same as the field at the surface

b. Greater than the field at the surface

c. Less than the field at the surface but not zero

d. Zero

Q.163 The resistance of a conductor is a measure of opposition offered due to collisions of:

a. Electrons with atoms

b. Proton with electron

c. Neutron with electron

d. Electron with electron

Q.164 A wire has resistance R and resistivity ρ is cut into two equal pieces then resistance and resistivity of each individual piece will be:

a. R and ρ

b. R and $\frac{\rho}{2}$

c. $\frac{R}{2}$ and $\frac{\rho}{2}$

d. $\frac{R}{2}$ and ρ



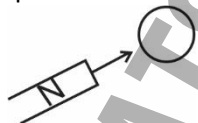
- Q.165** A steady current is flowing in a conductor of non-uniform cross-section. The charge passing through any cross-section per unit time is
- Directly proportional to the area of cross-section
 - Proportional to square of the area of cross-section
 - Inversely proportional to the area of cross-section
 - Independent of the area of cross-section

- Q.166** If 100W, 220 V rated bulb is connected with 110 V power supply then power of bulb in circuit will be:
- 100 W
 - 25 W
 - 50 W
 - 0 W

- Q.167** A charge is projected with velocity of 10m/s in a magnetic field of 10T at angle of 60°. If force of 2.78×10^{-17} N is exerted on the charge then value of charge will be:
- 1.60×10^{-19} C
 - 4.80×10^{-19} C
 - 2.70×10^{-19} C
 - 3.20×10^{-19} C

- Q.168** The unit of \vec{E} is NC^{-1} and that of \vec{B} is $\text{NA}^{-1} \text{m}^{-1}$ the unit of $\vec{E} \times \vec{B}$ is
- m s^{-2}
 - m s
 - m s^{-1}
 - $\text{m}^{-1} \text{s}^{-1}$

- Q.169** A bar magnet is moved towards the loop. The direction of induced current is



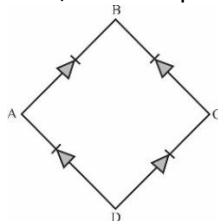
- Clockwise
 - Anticlockwise
 - Along the axis of loop
 - No current produce
- Q.170** A loop of 5 turns of wire is placed in uniform magnetic field of 0.5T. Then area of loop shrinks at constant rate $10 \text{ m}^2/\text{s}$. Emf induced in the loop is:
- 25V
 - 250V
 - 2.5V
 - 0.25V

- Q.171** In a practical transformer mutual induction between primary and secondary coils takes place, in such transformer what can be deduced about the power
- Power output = power input
 - Power output \geq power input
 - Power output > power input
 - Power output < power input

- Q.172** A coil of 200 turns linked by a flux of 30 m Wb, if this flux is reversed in a time of 1 ms, the change in flux is
- 30×10^{-3} Web
 - 50×10^{-3} Web
 - 60×10^{-3} Web
 - Zero

- Q.173** In a Half wave rectifier, the diode conducts during
- Both halves of the input cycle
 - Positive half cycle of the input
 - A portion of the positive half cycle of the input
 - Negative half cycle or positive half cycle

- Q.174** In given diagram for full wave rectification, where Input AC must be applied



- Across A and D
 - Across A and C
 - Across B and D
 - Across B and C
- Q.175** According to uncertainly principle the quantities which cannot be simultaneously measured with accuracy, are
- Energy and momentum
 - Position and momentum



c. Position and energy

d. Momentum and time

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- Q.176** _____ has the largest de Broglie wavelength at same speed.
- a. Proton
 - b. α - particle
 - c. Carbon atom
 - d. Electron
- Q.177** For gaining atomic spectra, an evacuated glass tube is filled with:
- a. Neon
 - b. Carbon dioxide
 - c. Hydrogen
 - d. Sulphur dioxide
- Q.178** In radioactivity, the rate of decay:
- a. Can be increased by magnetic field
 - b. Can be increased by electric field
 - c. Can be decreased by magnetic field
 - d. Is not effected by electric or magnetic field
- Q.179** Equation $4\text{}^1_1\text{H} \longrightarrow \text{}^4_2\text{He} + 2\text{e}^+ + 26\text{ M eV}$ represents
- a. Fission
 - b. β -decay
 - c. γ -decay
 - d. Fusion
- Q.180** Half-life of iodine-131 is 8 days. If 20mg is present initially, how much iodine is left behind after 2 half-lives?
- a. 10 mg
 - b. 5 mg
 - c. 2.5 mg
 - d. 1.25 mg



SPOT THE ERROR:

In the first type of sentences, some segments of each sentence are underlined. Your task is to identify that underlined segment of the sentence, which contains the mistake that needs to be corrected.

- Q.181** Kiyazim with some undefeated remnants of the Ottoman Army, began to obstruct the Allied officers, refused to disband his men.
a. b. c. D-refusing
d.
- Q.182** Over-crowding, un-cleanliness, over-heat and unhealthy conditions weakened the insects and made them more liable to the disease.
a. A- over-heating
b. c. d.
- Q.183** It has estimated that before Pasteur came to the rescue, France had lost forty million francs through silkworm disease.
a. b. c. A- has been estimated
d.
- Q.184** Overcoming his dislike of seeing suffering, he visited hospitals, collecting infectious matter and identifying the germs associated to various diseases.
a. b. D-with
c. d.
- Q.185** I had my hair cut off and sold it. You won't care, do you? My hair grows very fast. It's Christmas, Jim. Let's be happy.
a. b. c. B-will you
d.
- Q.186** The news spread like fire in the neighborhood. Mr. Hubert also informed. He was in triumph.
a. b. c. d. C-was also informed
- Q.187** Then my father started to move slowly up the path again, supporting with his cane. I followed at his heels.
a. b. a. C-supporting himself
d.
- Q.188** For although the evening air was no longer black and thick, but a clear blue, everything else –trees, buildings, bushes – were gone under the moving brown masses.
a. b. c. D-was
d.

CORRECTION:

In each of the following questions, four alternative sentences are given. Choose the CORRECT one and fill the Circle corresponding to that letter in the MCQ Response Form.

- Q.189**
a. Pasteur imparted his discoveries to the English brewers as well as to French.
b. Pasteur imparted his discoveries to the English brewers as well as French.
c. Pasteur imparted his discoveries to the English brewers as well as the French.
d. Pasteur imparted his discoveries to the English brewers as well as to the French.
- Q.190**
a. The surgeon's problem was the same as of a physician treating disease.
b. The surgeon's problem was the same as a physician treating disease.
c. The surgeon's problem was the same as that of a physician's treating disease.
d. The surgeon's problem was the same as that of a physician treating disease.

Q.191



- a. The son was fortunately possessed forbears of character and strength.
- b. The son was fortunate to possess forbears of character and strength.
- c. The son fortunately possessed of forbears of character and strength.
- d. The son was fortunate in possessing forbears of character and strength.

Q.192

- a. Jim lacked of good eyesight, so he had to wear glasses that corrected his vision.
- b. Jim was lacking good eyesight, so he had to wear glasses that corrected his vision.
- c. Jim lacked good eyesight, so he had to wear glasses that corrected his vision.
- d. Jim lacked in good eyesight, so he had to wear glasses that corrected his vision.

Q.193

- a. A few moments later, she went back into the kitchen to make the salad.
- b. A few moments later, she went back in the kitchen to make the salad.
- c. Few moments later, she went back into the kitchen to make the salad.
- d. A few moments later, she went back into the kitchen for making the salad.

Q.194

- a. "I'll get it. Norma called from the kitchen." Arthur was in the living room, reading.
- b. I'll get it," Norma called from the kitchen. Arthur was in the living room reading.
- c. I'll get it," Norma called from the kitchen. Arthur was in the living room, reading.
- d. "I'll get it", Norma called from the kitchen. Arthur was in the living room, reading.

Directions:

In each question in the following, four alternative sentences are given. Choose the CORRECT NARRATION.

Q.195 The manager said to him, 'Why didn't you attend the meeting yesterday?'

- a. The manager enquired him why did not he attend the meeting the day before.
- b. The manager asked him why he did not attend the meeting the previous day.
- c. The manager asked him why he had not attended the meeting the day before.
- d. The manager enquired him that why had not he attended the meeting yesterday.

Q.196 I will never forget this experience.

- a. This experience will never forget by me.
- b. This experience will never forgotten by me.
- c. This experience will be never forgotten by me.
- d. This experience will never be forgotten by me.

Sentence Completion:

Fill in the blanks with appropriate word.

Q.197 Once the fire was stable, he returned to his spot, _____ deeply, and went to sleep.

- a. Yawned
- b. Sneezed
- c. Hiccupped
- d. Belched

Q.198 Female dogs sometimes _____ their puppies by nipping on their ears.

- a. Behold
- b. Hatch
- c. Fetch
- d. Scold

Synonyms

Choose the word that is most nearly SIMILAR in meaning to the word in capital letters.

Q.199 LABRYNTH

- a. Convolution
- b. Convulsion
- c. Homogeneity
- d. Mutiny

Antonyms

Choose the word OPPOSITE in meaning to CAPITALIZED word given above.

Q.200 NAÏVE

- a. Inimical
- b. Susceptible
- c. Cynical
- d. Ostensible



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SUPER FINAL PAPER-5

Total MCQs: 200

Max. Marks: 200

BIOLOGY

- Q.1 In fluid mosaic model of plasma membrane:**
 a. Upper layer is non-polar and hydrophilic
 b. Upper layer is polar and hydrophobic
c. Phospholipid form a bi-molecular layer in middle part
 d. Proteins form a middle layer
- Q.2 Nuclear envelope is derived from:**
 a. RER
 c. Membrane of Golgi complex
b. SER
 d. Microtubules
- Q.3 In which of the following does active transport take place?**
a. Pumps
 c. Facilitated diffusion
 b. Gates
 d. Diffusion
- Q.4 Structure of nuclear membrane helps in:**
 a. Organization of spindles
c. Nucleo-cytoplasmic exchange of material
 b. Synapsis of homologous chromosomes
 d. Anaphasic separation of daughter chromosomes
- Q.5 Which one is semi-autonomous organelle?**
 a. Peroxisomes
 c. Endoplasmic reticulum
 b. Golgi bodies
d. Mitochondria
- Q.6 Animal cells differs from plant cells in not having the:**
 a. Cell wall
 c. Glyoxysomes
 b. Plastids
d. All A, B, C
- Q.7 It is not a chemical component of primary cell wall of plants:**
 a. Cellulose
c. Silica
 b. Pectin compounds
 d. Hemicellulose
- Q.8 Starch, glycogen and cellulose share which one of the properties?**
 a. Polysaccharides with α -1, 4 linkage of monomer
 b. Branched polysaccharides
c. Polysaccharides of glucose
 d. Originated from plants
- Q.9 Which one of the following is an example of reducing sugar?**
a. Lactose
 c. Cellulose
 b. Sucrose
 d. Starch
- Q.10 Phospholipids are:**
a. Amphipathic
 c. Hydrophobic
 b. Amphibolic
 d. Hydrophilic
- Q.11 A DNA template was found to contain 29% of adenine bases, the percent of G+C, in this template will be:**
 a. 58%
 c. 71%
b. 42%
 d. 29%
- Q.12 The two strands of the DNA double helix are held together by:**
a. Hydrogen bonds
 c. Peptide bonds
 b. Hydrophobic bonds
 d. Phosphodiester bonds
- Q.13 All of the following correctly describes the active site of an enzyme except:**
 a. It is small relative to the entire enzyme
b. It is two dimensional in structure
 c. Specificity is defined by arrangement of certain atoms
 d. Initially binds substrates by weak attractions
- Q.14 A non-protein organic part attached firmly by a covalent linkage to the apoenzyme is called:**
 a. Co-enzyme
 c. Activator
b. Prosthetic group
 d. Co-factor



- Q.15** An example of competitive inhibition of an enzyme is the inhibition of:
a. Succinic dehydrogenase by malonic acid
b. Cytochrome oxidase by cyanide
c. Hexokinase by glucose 6 phosphate
d. Carbonic anhydrase by CO₂
- Q.16** Which one of the following is not a limiting factor for photosynthesis?
a. Oxygen
b. Chlorophyll
c. Carbon dioxide
d. Light
- Q.17** Light reaction of photosynthesis takes place in:
a. Grana
b. Glyoxisomes
c. Stroma
d. Peroxisomes
- Q.18** The synthesis of ATP in photosynthesis and respiration is essentially an oxidation–reduction process involving removal of energy from:
a. Oxygen
b. Cytochrome
c. Phytochrome
d. Electrons
- Q.19** Which is end product of oxidative phosphorylation?
a. ATP
b. NADH
c. ATP and H₂O
d. Oxygen
- Q.20** All of the following are similarities between mitochondria and chloroplast except:
a. Contains battery of enzymes and cofactors
b. Contains their own DNA and 70S ribosomes
c. Provide cells with ATP
d. Both are involved in anabolism
- Q.21** During chemiosmosis, ATPs are formed when H⁺ move:
a. Actively from cytoplasmic matrix to inter membranous space
b. Actively from inter membranous space to cytoplasmic matrix
c. Passively from inter membranous space to mitochondrial matrix
d. Passively from mitochondrial matrix to inter membranous space
- Q.22** Metabolic enzymes are absent in:
a. Fungi
b. Bacteria
c. Viruses
d. Algae
- Q.23** Which of following is present in all viruses?
a. DNA
b. RNA
c. Proteins
d. Envelop
- Q.24** It correctly explains the feature of all viruses:
a. Facultative intracellular parasites
b. Obligate intracellular parasites
c. Facultative intercellular parasites
d. Obligate intercellular parasites
- Q.25** Which of these viruses contain a single stranded RNA molecule?
a. Bacteriophages
b. HIV
c. Herpes
d. Small pox
- Q.26** Bacteria differ from fungi in that they do not have:
a. DNA
b. RNA
c. Cell wall
d. Well defined nucleus
- Q.27** Some bacteria have capsule outside cell wall, it is made of:
a. Cellulose
b. Lipids
c. Glycolipids
d. Mucopolysaccharides
- Q.28** *Entamoebae* is a:
a. Free living fresh water amoeba
b. Free living soil inhabiting amoeba
c. Free living marine water amoeba
d. Parasitic amoeba
- Q.29** All of these show ecological importance of fungi except:
a. Decomposition
b. Bioremediation
c. Genetic engineering
d. Recycling
- Q.30** In the absence of decomposers functioning of ecosystem is adversely affected due to:
a. Blocking of mineral cycling
b. Blocking of solar energy to herbivores
c. Blocking of energy
d. Increase in the rate of decomposition by other organisms
- Q.31** Land habitat is dominated most successfully by:
a. Gymnosperms
b. Angiosperms
c. Pteridophytes
d. Bryophytes



Q.32 Respiration occurs through organs like gills, book lungs or tracheal system found in phylum:

- a. Mollusca
b. Annelida
c. Arthropoda
d. Echinodermata

Q.33 Mesoderm gives rise to all of the following systems except:

- a. Muscular system
b. Skeletal system
c. Reproductive system
d. Nervous system

Q.34 Where is apoplastic movement shifted to symplastic pathway?

- a. Cortex
b. Endodermis
c. Pericycle
d. Xylem

Q.35 Which of the following is correctly matched with respect to heart?

	Valves	Septa	Chambers
a.	4	4	4
b.	2	4	2
c.	2	2	2
d.	4	2	4

Q.36 Structure of capillaries resembles with which layer of arteries and veins?

- a. Outer layer
b. Middle elastic layer
c. Middle muscular layer
d. Inner layer

Q.37 Capillaries usually pick up all of the following from extracellular fluid of skeletal muscle cell except?

- a. Nitrogenous wastes
b. Carbon dioxide
c. Lactic acid
d. Oxygen

Q.38 Lymph nodes are drained by:

- a. Single afferent vessel
b. Many afferent vessels
c. Single efferent vessel
d. Many efferent vessels

Q.39 The valves present in human heart actually control:

- a. Velocity of blood flow
b. Direction of blood flow
c. Blood pressure
d. Volume of blood flow

Q.40 The T-cells are converted into immuno-competent cells by:

- a. Bone marrow
b. Spleen
c. Thymus
d. Iron

Q.41 Adaptive immunity constitutes:

- a. First line of defense
b. Third line of defense
c. Second line of defense
d. Innate defense lines

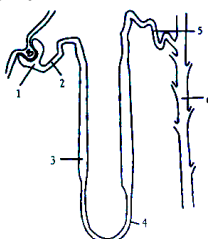
Q.42 The plasma protein which leaks through the capillary pore to interstitial fluid finally returns to circulation by:

- a. Blood capillaries
b. Lymph vessels
c. Renal portal vessels
d. Bone marrow

Q.43 Which of the following component of blood does not enter into the nephron?

- a. Water
b. Glucose
c. Plasma protein
d. Urea

Q.44 The diagram represents a nephron:



Normally the filtrate present at point '3' can have all of the following except:

- a. Glucose
b. Na^+
c. H_2O
d. Urea

Q.45 With respect to the blood, the mammalian kidney does not have an important role in maintaining which of the following?

- a. Water content
b. Blood pressure
c. Salt levels
d. Glucose levels



- Q.46** Heart pumps 70ml of blood in one beat. What will be the amount of blood received by kidneys after one cardiac beat?
a. 7 ml
b. 14 ml
c. 20 ml
d. 24 ml
- Q.47** Which of the following glands play a major role in non-shivering thermogenesis?
a. Pancreas
b. Thyroid gland
c. Parathyroid glands
d. Adrenal glands
- Q.48** The functional unit of skeletal muscles is actually a region of:
a. Myofibrils
b. Myofilaments
c. A band
d. I band
- Q.49** According to sliding filament model, which of the following will not change in an A-band of a contracted sarcomere as compared to relaxed state?
a. Position of thin filaments
b. Length of H-zone
c. State of cross bridges
d. Presence of M-line
- Q.50** Which of the following are involved in the formation of triads?
a. Sarcolemma and sarcoplasmic reticulum
b. Sarcolemma and myofibrils
c. Sarcolemma and myofilaments
d. Sarcoplasmic reticulum and myofilaments
- Q.51** Which of the following statement is incorrect for node of Ranvier?
a. These are related with myelin sheath
b. These are formed by Schwann cells
c. These are found around all neurons
d. These allow salutatory impulse
- Q.52** A bipolar neuron has:
a. 2 axons and 1 dendrite
b. 2 axons and 2 dendrites
c. 2 dendrites and 1 axon
d. 1 dendrite and 1 axon
- Q.53** In the resting state of the neurolemma, diffusion due to concentration gradients, if allowed would drive:
a. K^+ and Na^+ out of the cell
b. Na^+ into the cell
c. Na^+ out of the cell
d. K^+ into the cell
- Q.54** Deficiency of which of the following causes low plasma Na^+ , high K^+ and increased blood pressure?
a. Thyroxine
b. Adrenaline
c. Cortisol
d. Aldosterone
- Q.55** Daily rhythms are usually associated with:
a. Hypothalamus
b. Pituitary
c. Thymus
d. Pineal
- Q.56** Blood calcium level can be increased by the administration of:
a. Glucagon
b. Thyroxine
c. Parathormone
d. Calcitonin
- Q.57** Which of the following is correct arrangement of phases before and after ovulation?
- | | Before | After |
|----|---------------|------------|
| a. | Proliferative | Follicular |
| b. | Luteal | Menstrual |
| c. | Proliferative | Secretory |
| d. | Menstrual | Follicular |
- Q.58** During menstrual cycle of 28 days, proliferative phase ends at:
a. 13th day
b. 15th day
c. 27th day
d. 21th day
- Q.59** LH surge causes:
a. Rupture of graffian follicle
b. Release of oogonium
c. Endometrial shedding
d. Maturation of follicle
- Q.60** Events that occur during regulation of blood glucose are:
i) Increase in blood glucose
ii) Increase in circulating glucagon
iii) Release of glucose from glycogen
iv) Decrease in blood glucose level
Identify the correct order of these events:
a. iv → iii → ii → i
b. iii → i → ii → iv
c. iv → ii → iii → i
d. I → ii → iv → iii



- Q.61 Genes in an individual for a particular trait constitute:**
a. Genotype
b. Gene pool
c. Genome
d. Gene frequency
- Q.62 With a genotype AaBb the fraction of gametes that will be 'ab' is:**
a. $\frac{1}{16}$
b. $\frac{1}{2}$
c. $\frac{1}{4}$
d. $\frac{3}{4}$
- Q.63 When two organisms each hybrid for a given trait are crossed a large progeny will show which one of the following percentage of hybrids:**
a. 75%
b. 25 %
c. 50%
d. 80 %
- Q.64 Which of the following genotypes cannot occur amongst the offspring form a mating between a person of blood group A and a person of blood group B:**
a. $I^A I^A$
b. $I^B i$
c. $I^A I^B$
d. ii
- Q.65 Sex chromosomes in human male are:**
a. Homologous and homomorphic
b. Non-homologous and homomorphic
c. Homologous and heteromorphic
d. Non-homologos and heteromorphic
- Q.66 If a carrier woman for haemophilia is married to a normal man, then all of the following combinations can exist in progeny except:**
a. $X^H X^H$
b. $X^H Y$
c. $X^h Y$
d. $X^h X^h$
- Q.67 It is the basic unit of eukaryotic chromosome:**
a. Centromere
b. Chromatid
c. Nucleosome
d. Centrosome
- Q.68 Primary structure of DNA is maintained through:**
a. Hydrogen bond
b. Ionic bond
c. Covalent bond
d. Hyperphobic interaction
- Q.69 DNA double helix is opened by:**
a. Primase
b. DNA polymerase
c. Helicase
d. Ligase
- Q.70 Transcription starts at the RNA polymerase binding site called:**
a. Primer
b. Promoter
c. Starter
d. Start Condon
- Q.71 Codon is the triplet code present on:**
a. DNA
b. tRNA
c. mRNA
d. rRNA
- Q.72 Which strand elongates towards the replication fork?**
a. Parent strand
b. Lagging strand
c. Leading strand
d. Template strand
- Q.73 Replacement of a purine nucleotide with a pyrimidine nucleotide is:**
a. Chromosomal aberration
b. Point mutation
c. Transposition
d. Natural selection
- Q.74 Evolution of different species in a given area starting from a point and spreading to other geographical areas is known as:**
a. Adaptive radiation
b. Migration
c. Natural selection
d. Divergent evolution
- Q.75 Analogous structures are a result of:**
a. Divergent evolution
b. Shared ancestry
c. Convergent evolution
d. Stabilizing selection
- Q.76 All of the following are palindromic sequences attacked by restriction endonuclease except:**
a. TTAA
b. CCAA
c. GATC
d. GAATTC



- Q.77** In a lambda phage, which of the following will actually serve as vector:
- a. DNA
 - b. Protein tail
 - c. Protein capsid
 - d. Envelop
- Q.78** All of the following constitute expression system for a foreign gene in biotechnology except:
- a. Viruses
 - b. Plants
 - c. Bacteria
 - d. Animals
- Q.79** All of the following methods are used to introduce gene into the cells except:
- a. Microinjection
 - b. Vortex method
 - c. Particle gun method
 - d. Sanger's method
- Q.80** Restriction endonucleases:
- a. Are used in genetic engineering for ligating two DNA molecules
 - b. Are used for in *vitro* DNA synthesis
 - c. Are synthesized by bacteria as part of their defense mechanism
 - d. Are present in mammalian cells for degradation of DNA when the cell die



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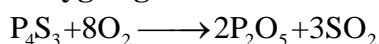
SUPER FINAL PAPER-5

Total MCQs: 200

Max. Marks: 200

CHEMISTRY

Q.81 Phosphorus sulfide (P_4S_3) is burnt completely to produce P_2O_5 and SO_2 . How many moles of oxygen gas are needed to burn half mole of P_4S_3



- a. 6
c. 4

- b. 8
d. 3.5

Q.82 The number of gram molecules of oxygen in 6.02×10^{24} CO molecules is

- a. 1 gm molecules
c. 5 gm molecules

- b. 2 gm molecules
d. 8 gm molecules

Q.83 The elemental substance is

- a. CO
c. Water

- b. Aq. NaCl
d. Gold

Q.84 The equation applicable at extremely low temperature and high pressure on gases is

- a. Ideal gas equation
c. Kinetic equation of gas

- b. Van der Waals's equation**
d. Arrhenius equation

Q.85 Which of the followings is not a crystalline solid

- a. Graphite
c. Rhombic sulphur

- b. Crystal glass**
d. Grey tin

Q.86 A student determined the value of the rate constant k for a chemical reaction at several different temperatures. Which of the following graphs of the student's data would give a straight line

- a. k versus T
c. k versus $(1/T)$

- b. $\ln k$ versus $(1/T)$**
d. $\ln k$ versus E_a

Q.87 The atomic number of an element 'M' is 26. How many electrons are present in the M-shell of the element in its ground state

- a. 11
c. 15

- b. 14**
d. 16

Q.88 Among the following species, identify the isostructural pairs, NF_3 , NO_3^- , BF_3 , H_3O^+ , NH_3

- a. $[NF_3, NO_3^-]$ and $[BF_3, H_3O^+]$
c. $[NF_3, H_3O^+]$ and $[NO_3^-, BF_3]$

- b. $[NF_3, NH_3]$ and $[NO_3^-, H_3O^+]$
d. $[NF_3, H_3O^+]$ and $[NH_3, BF_3]$

Q.89 Bonds present in $CuSO_4 \cdot 5H_2O$ is

- a. Electrovalent and covalent bonds
b. Electrovalent and coordinate covalent bonds
c. Covalent and coordinate bonds
d. Electrovalent, covalent and coordinate covalent bonds

Q.90 Which one of the following is exothermic process

- a. Boiling
c. Melting

- b. Condensation**
d. Sublimation

Q.91 What does it mean if the ΔH value for a chemical reaction is positive?

- a. Reactants have more potential energy than product
b. Potential energy is decreasing in the system
c. Products have less potential energy than reactants
d. Reactants have less potential energy than products

Q.92 The most easily oxidizable species amongst the followings is

- a. Ca**
c. Al

- b. F_2
d. H_2

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- Q.93** The cell reaction of the galvanic cell $\text{Cu}_{(s)}|\text{Cu}^{2+}_{(aq)}||\text{Hg}^{2+}_{(aq)}|\text{Hg}_{(l)}$ is
- $\text{Hg} + \text{Cu}^{2+} \longrightarrow \text{Hg}^{2+} + \text{Cu}$
 - $\text{Cu} + \text{Hg} \longrightarrow \text{CuHg}$
 - $\text{Hg} + \text{Cu}^{2+} \longrightarrow \text{Cu}^{+} + \text{Hg}^{+}$
 - $\text{Cu} + \text{Hg}^{2+} \longrightarrow \text{Cu}^{2+} + \text{Hg}$
- Q.94** Which of the following represents acidic buffer solution
- 1 M NH_4OH + 1 M NH_4Cl
 - 1 M CH_3COOH + 0.5 M NaOH
 - 1 M CH_3COOH + 1 M NaCl
 - 1 M CH_3COOH + 1 M NH_4Cl
- Q.95** $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$ units of given reaction are
- $\text{mol}^{+2} \cdot \text{dm}^{-6}$
 - $\text{mol}^{+2} \cdot \text{dm}^{-3}$
 - $\text{mol}^{-1} \cdot \text{dm}^{+3}$
 - $\text{mol}^{-2} \cdot \text{dm}^{+6}$
- Q.96** The rate laws for certain enzyme-activated reactions in your body have a specific rate constant k , with units of $\text{mol dm}^{-3} \text{s}^{-1}$. What is the overall order of these reactions
- 0
 - 2
 - 1
 - Cannot be determined
- Q.97** The internal energy change when a system goes from state A to B is 40 kJ/mol. If the system goes from A to B by a reversible path and returns to state A by an irreversible path what would be the net change in internal energy
- = 40 kJ
 - < 40 kJ
 - > 40 kJ
 - Zero
- Q.98** Which species has largest radius
- Be^{2+}
 - N^{3-}
 - O^{2-}
 - F^{-}
- Q.99** Correct order of melting point of IIA elements are
- $\text{Be} > \text{Mg} > \text{Ca}$
 - $\text{Sr} < \text{Ba} < \text{Ra}$
 - $\text{Be} > \text{Mg} < \text{Ca}$
 - $\text{Mg} < \text{Sr} < \text{Ca}$
- Q.100** The coordination number of Fe in $\text{K}_4[\text{Fe}(\text{CN})_6]$ is
- 4
 - 3
 - 5
 - 6
- Q.101** For maximum yield of NH_3 , catalyst used at 300atm/400°C is
- Fe pieces embedded in $\text{MgO} + \text{Al}_2\text{O}_3 + \text{SiO}_2$
 - Pt
 - Ni – Al
 - Fe_2O_3
- Q.102** The compound which has cis-trans isomers is
- 1,1 – Dichloroethene
 - 1 – Butene
 - 1,2 – Dichloroethene
 - 1 – Pentene
- Q.103** The benzene ring activating group is
- Amine group
 - Chloro group
 - Nitro group
 - Aldehydic group
- Q.104** Hybridization state of central carbon in secondary carbocation is
- sp
 - sp^3
 - dsp^2
 - sp^2
- Q.105** Alkanes mainly undergo _____ reactions
- Free radical substitution
 - Electrophilic addition
 - Ionic elimination
 - Nucleophilic addition
- Q.106** The characteristic reactions of alkenes are
- Electrophilic addition
 - Free radical substitution
 - Nucleophilic addition
 - Electrophilic substitution
- Q.107** Actual product formed by oxidation of toluene and ethyl benzene is
- Maleic acid
 - Benzoic acid
 - Glyoxal
 - Acetic acid
- Q.108** Which one is most likely to give $\text{S}_{\text{N}}1$ reaction
- $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Br}$
 - $(\text{CH}_3)_2\text{CHCH}_2\text{Br}$
 - $\text{CH}_3\text{CH}_2\text{CHBrCH}_3$
 - $(\text{CH}_3)_3\text{CBr}$
- Q.109** The alkyl halide is converted into an alcohol by
- Substitution
 - Addition
 - Elimination
 - Dehydrohalogenation



Q.110 $2\text{CH}_3 - \text{CH}_2 - \text{Cl} \xrightarrow[\text{ether}]{2\text{Na}} ?$

- a. Ethane
- c. Ethene

- b. Butane
- d. Ethyne

Q.111 The elements _____ and _____ can form polymeric halides and amphoteric oxides in their respective periods due to moderate values of their electronegativities

- a. Be and B
- c. B and C

- b. Mg and Al
- d. Be and Al

Q.112 Reduction of benzene by using Pt occur in the presence of

- a. CH_3COOH
- c. HCHO

- b. CH_3OH
- d. ZnCl_2

Q.113 The compound on oxidation gives a ketone. The original compound is

- a. Tertiary alcohol
- c. Secondary alcohol

- b. Primary alcohol
- d. Carboxylic acid

Q.114 Which one of the following compounds will be most readily attacked by an electrophile

- a. Phenol
- c. Benzene

- b. Nitrobenzene
- d. Chlorobenzene

Q.115 Denatured alcohol is

- a. Methylated spirit
- c. Undistilled ethanol

- b. Rectified spirit
- d. Wood spirit

Q.116 Which of the following orders of relative strengths of acids is correct

- a. $\text{ClCH}_2\text{COOH} > \text{FCH}_2\text{COOH} > \text{BrCH}_2\text{COOH}$
- b. $\text{ClCH}_2\text{COOH} > \text{BrCH}_2\text{COOH} > \text{FCH}_2\text{COOH}$
- c. $\text{BrCH}_2\text{COOH} > \text{ClCH}_2\text{COOH} > \text{FCH}_2\text{COOH}$
- d. $\text{FCH}_2\text{COOH} > \text{ClCH}_2\text{COOH} > \text{BrCH}_2\text{COOH}$

Q.117 The ester $\text{CH}_3\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_3$ is responsible for the aroma of apples. When this ester is hydrolyzed by acid in the stomach, what is the formula of the organic acid produced

- a. CH_3COOH
- c. $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$

- b. HCOOH
- d. $\text{CH}_3\text{CH}_2\text{COOH}$

Q.118 Which of the following produces carboxylic acid when reacted with alkene

- a. $\text{K}_2\text{Cr}_2\text{O}_7 / \text{H}^+$
- c. Hot $\text{KMnO}_4 / \text{H}^+$

- b. Cold $\text{KMnO}_4 / \text{H}^+$
- d. $\text{LiAlH}_4 / \text{Ether}$

Q.119 Which acid is used for the preparation of Fehling's solution

- a. Tartaric acid
- c. Citric acid

- b. Malonic acid
- d. Oxalic acid

Q.120 Alkanoic acid and alkyl alkanoate are _____ isomer of each other

- a. Chain
- c. Positional

- b. Functional group
- d. Metamerism

Q.121 According to quantum theory, the correct relationship/s is/are

- a. $E = h\nu$
- c. $E = hc/\lambda$

- b. $E = h\nu$
- d. All of these

Q.122 The photon of energy is released when an electron in hydrogen atom jumps from

- a. $n = 1$ to $n = 2$
- c. $n = 1$ to $n = 3$

- b. $n = 6$ to $n = 7$
- d. $n = 7$ to $n = 1$

Q.123 The orbital which is more diffused and largest in size is

- a. 2s
- c. 3p

- b. 3d
- d. 3s

Q.124 The density of CO_2 gas at 1 atm and -9°C is

- a. 2 gdm^{-3}
- c. 1 gdm^{-3}

- b. 0.75 gdm^{-3}
- d. 0.25 gdm^{-3}

Q.125 The correct compressibility order between different states of matter is

- a. Solids > Liquids > Gases
- c. Gases > Liquids > Solids

- b. Solids > Gases > Liquids
- d. Liquids > Gases > Solids

Q.126 Which kind of intermolecular forces are dominant in liquefied noble gases

- a. Dipole-dipole forces
- c. London dispersion forces

- b. Hydrogen bonding
- d. Debye's forces



- Q.127** The Na_2SO_4 is formed by formation of electrovalent bonds between its
 a. Atoms **b. Ions**
 c. Molecules d. Cations
- Q.128** $\text{PbS}_{(s)} \rightarrow \text{Pb}^{+2}_{(aq)} + \text{S}^{-2}_{(aq)}$
 If K_{sp} is $2 \times 10^{-6} \text{ mol}^2 \text{ dm}^{-6}$, what is $[\text{S}^{-2}]$ in the above reaction?
 a. $1 \times 10^{-3} \text{ moldm}^{-3}$ **b. $2 \times 10^{-3} \text{ moldm}^{-3}$**
c. $1.41 \times 10^{-3} \text{ moldm}^{-3}$ d. $1 \times 10^{-6} \text{ moldm}^{-3}$
- Q.129** Which enthalpy change is relevant in the following process?
 $\text{Na}_{(s)} \rightarrow \text{Na}_{(g)} \quad \Delta H = +108 \text{ kJmol}^{-1}$
 a. Enthalpy of fusion **b. Enthalpy of vaporization**
c. Enthalpy of atomization d. Enthalpy of formation
- Q.130** The correct reaction of Al metal is
 a. $2\text{Al}_{(s)} + 6\text{H}_2\text{O} \rightarrow \text{Al}(\text{OH})_3 + 3\text{H}_2$ **b. $2\text{Al}_{(s)} + 3\text{Cl}_2 \rightarrow 2\text{AlCl}_{3(s)}$**
 c. $4\text{Al}_{(s)} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_{3(s)}$ **d. Both B and C**
- Q.131** $2\text{F}^- \longrightarrow \text{F}_2$
 How many electrons are written in above reaction
 a. 2 electrons on right side **b. 1 electrons on right side**
c. 2 electrons on left side d. 1 electrons on left side
- Q.132** In which of the following oxidation state, the manganese ion has maximum paramagnetic character?
 a. +1 **b. +2**
 c. +7 d. +5
- Q.133** In 3d-series of transition elements, the atomic size remains almost constant along period instead of decreasing due to increases in
a. Shielding effect of d-subshell electrons **b. Unpaired d-subshell electrons**
 c. Atomic number d. Atomic mass
- Q.134** The functional group of most acidic compounds containing family is
a. $-\text{COOH}$ **b. $-\text{COH}$**
 c. $-\text{OH}$ d. $-\text{NH}_2$
- Q.135** Hydrolysis of ethane nitrile produces
 a. Propanoic acid **b. Ethanoic acid**
 c. Ethyl amine d. Ammonium acetate
- Q.136** An unknown compound gives positive iodoform test. It is indicated that the unknown compound is
 a. A primary alcohol other than ethanol **b. An aldehyde other than ethanal**
c. A methyl ketone d. A non-methyl ketone
- Q.137** Which of the following enzyme raised in body in heart disease
a. LDH-1 **b. Thrombin**
 c. L- Asparaginase d. Alkaline phosphate
- Q.138** Which of the following statements is NOT correct
 a. The enzymatic reaction occurs best at or around 37°C
 b. Conversion of fumaric acid into maleic acid take place in the presence fumarase enzyme
c. Most enzymatic reactions are irreversible
 d. Enzymes are readily in activated by exposure to ultraviolet light
- Q.139** All proteins contain the element carbon, hydrogen, oxygen and _____
 a. Iron **b. Sulphur**
 c. Zinc **d. Nitrogen**
- Q.140** $\text{Ethyne} + 2\text{HBr} \rightarrow \text{Product}$
 The name of above product is
a. 1,1-Dibromoethane **b. 1,2-Dibromoethane**
 c. 1-bromoethene d. 1-bromoethane



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SUPER FINAL PAPER-5

Total MCQs: 200

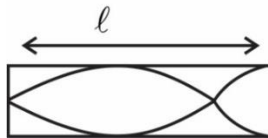
Max. Marks: 200

PHYSICS

- Q.141** Newton first law of motion is also known is
 a. Law of inertia
 c. Law of electromagnetism
 b. Law of universal gravity
 d. Law of conservation
- Q.142** For projectile motion in the absence of air resistance:
 a. Vertical speed is constant
 c. Horizontal force is constant
 b. Horizontal acceleration is zero
 d. Vertical acceleration is zero
- Q.143** The product of force and time have same unit as:
 a. Angular momentum
 c. Change in momentum
 b. momentum
 d. Both 'b' and 'c'
- Q.144** If two objects of equal masses 'm' are moving towards each other with the same speeds 'v' then what will be the total final momentum after elastic head-on collision?
 a. - mv kg/s
 c. mv kg m/s
 b. 2 mv kg/s
 d. 0 kg m/s
- Q.145** Which one of the following is a greater work?
 a. +100 J
 c. -100 J
 b. -1000 J
 d. +200 J
- Q.146** A stone of mass 2.0 kg is dropped from a rest position above the ground where its potential energy is 100 J . What is its velocity at a height of 3.0m above the ground?
 a. 12.5m/s
 c. 6.3m/s
 b. 9.3m/s
 d. 16.0m/s
- Q.147** In the presence of air friction, the relation for free falling body is
 a. $mgh = \frac{1}{2}mv^2 - fh$
 c. $mgh = fh - \frac{1}{2}mv^2$
 b. $mgh = \frac{1}{2}mv^2 + fh$
 d. $mgh = fg + \frac{1}{2}mv^2$
- Q.148** A body is falling from a height h. After it has fallen a height h/4, it will possess
 a. Only potential energy
 c. Only kinetic energy
 b. 75 % P.E and 25% K.E
 d. 25% K.E and 75 % P.E
- Q.149** A stone of mass 2 Kg tied to a string of length one meter is rotated in a circle with the other end of the string as the center. What may be the speed of the object if string can bear maximum tension 98 N
 a. 3 msec⁻¹
 c. 5 msec⁻¹
 b. 7 msec⁻¹
 d. All are possible
- Q.150** The relation between the linear velocity and angular velocity is.
 a. $\omega = r \times v$
 c. $\frac{1}{v} = \frac{1}{\omega} \times r$
 b. $\frac{1}{v} = r \times \omega$
 d. $\omega = \frac{1}{v} \times r$
- Q.151** A flywheel gains a speed of 540 rpm in 6 second. Its angular acceleration is
 a. 3 π rad s⁻²
 c. 9 π rad s⁻²
 b. 6 π rad s⁻²
 d. 12 π rad s⁻²
- Q.152** A point on the rim of a wheel 4 m in diameter has a velocity of 1600 cm s⁻¹. The angular velocity of the wheel is
 a. 2 rad s⁻¹
 c. 6 rad s⁻¹
 b. 4 rad s⁻¹
 d. 8 rad s⁻¹
- Q.153** A source of sound moves towards a stationary observer with a speed one third that of sound. If the frequency of the sound from the source is 100 Hz, the apparent frequency of the sound heard by the observer is
 a. 67 Hz
 c. 150 Hz
 b. 100 Hz
 d. 75 Hz



Q.154 What is the frequency of wave of sound in this closed pipe system?



a. $f = \frac{3v}{4l}$

b. $f = \frac{2v}{3l}$

c. $f = \frac{3v}{2l}$

d. $f = \frac{4l}{3v}$

Q.155 The percentage error in Newton's formula for the speed of sound in air is

a. 15%

b. 20%

c. 16%

d. 84%

Q.156 In Doppler effect if listener moves towards a stationary source then:

a. Observed frequency is greater than original frequency

b. Observed frequency is less than original frequency

c. Observed frequency is equal to original frequency

d. Observed frequency is independent of original frequency

Q.157 The bicycle pump works on the basis of:

a. 1st law of thermodynamics

b. 2nd law of thermodynamics

c. Law of conservation of energy

d. Law of entropy

Q.158 Ratio $\frac{C_v}{C_p}$ is

a. Less than one for monoatomic gas

b. Greater than one for diatomic gas

c. Greater than one for polyatomic gas

d. Always less than one

Q.159 If the distance between two charges becomes double then the force between them become.

a. One half

b. $\frac{1}{4}$ times

c. Double half

d. None of these

Q.160 When potential in a capacitor rises from 0 to V, then average potential difference is

a. V

b. -V

c. $\frac{V+V}{2}$

d. $\frac{V}{2}$

Q.161 On removing the dielectric from a charged capacitor, its energy stored

a. Increases

b. Remains unchanged

c. Decreases

d. None of the above

Q.162 A hollow sphere of copper is positively charged. Then the electric field inside the sphere is

a. The same as the field at the surface

b. Greater than the field at the surface

c. Less than the field at the surface but not zero

d. Zero

Q.163 The resistance of a conductor is a measure of opposition offered due to collisions of:

a. Electrons with atoms

b. Proton with electron

c. Neutron with electron

d. Electron with electron

Q.164 A wire has resistance R and resistivity ρ is cut into two equal pieces then resistance and resistivity of each individual piece will be:

a. R and ρ

b. R and $\frac{\rho}{2}$

c. $\frac{R}{2}$ and $\frac{\rho}{2}$

d. $\frac{R}{2}$ and ρ



Q.165 A steady current is flowing in a conductor of non-uniform cross-section. The charge passing through any cross-section per unit time is
 a. Directly proportional to the area of cross-section
 b. Proportional to square of the area of cross-section
 c. Inversely proportional to the area of cross-section
d. Independent of the area of cross-section

Q.166 If 100W, 220 V rated bulb is connected with 110 V power supply then power of bulb in circuit will be:

- a. 100 W
 b. 25 W
 c. 50 W
 d. 0 W

Q.167 A charge is projected with velocity of 10m/s in a magnetic field of 10T at angle of 60°. If force of 2.78×10^{-17} N is exerted on the charge then value of charge will be:

- a. 1.60×10^{-19} C
 b. 4.80×10^{-19} C
 c. 2.70×10^{-19} C
d. 3.20×10^{-19} C

Q.168 The unit of \vec{E} is NC^{-1} and that of \vec{B} is $\text{NA}^{-1} \text{m}^{-1}$ the unit of $\frac{\vec{E}}{\vec{B}}$ is

- a. m s^{-2}
 b. m s
c. m s^{-1}
 d. $\text{m}^{-1} \text{s}^{-1}$

Q.169 A bar magnet is moved towards the loop. The direction of induced current is



- a. Clockwise
b. Anticlockwise
 c. Along the axis of loop
 d. No current produce

Q.170 A loop of 5 turns of wire is placed in uniform magnetic field of 0.5T. Then area of loop shrinks at constant rate $10\text{m}^2/\text{s}$. Emf induced in the loop is:

- a. 25V**
 b. 250V
 c. 2.5V
 d. 0.25V

Q.171 In a practical transformer mutual induction between primary and secondary coils takes place, in such transformer what can be deduced about the power

- a. Power output = power input
 b. Power output \geq power input
 c. Power output > power input
d. Power output < power input

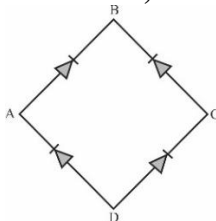
Q.172 A coil of 200 turns linked by a flux of 30 m Wb, if this flux is reversed in a time of 1 ms, the change in flux is

- a. 30×10^{-3} Web
 b. 50×10^{-3} Web
c. 60×10^{-3} Web
 d. Zero

Q.173 In a Half wave rectifier, the diode conducts during

- a. Both halves of the input cycle
 b. Positive half cycle of the input
 c. A portion of the positive half cycle of the input
d. Negative half cycle or positive half cycle

Q.174 In given diagram for full wave rectification, where Input AC must be applied



- a. Across A and D
b. Across A and C
 c. Across B and D
 d. Across B and C

Q.175 According to uncertainty principle the quantities which cannot be simultaneously measured with accuracy, are

- a. Energy and momentum
b. Position and momentum
 c. Position and energy
 d. Momentum and time



Q.176 _____ has the largest de Broglie wavelength at same speed.

- a. Proton
- b. α - particle
- c. Carbon atom
- d. Electron

Q.177 For gaining atomic spectra, an evacuated glass tube is filled with:

- a. Neon
- b. Carbon dioxide
- c. Hydrogen
- d. Sulphur dioxide

Q.178 In radioactivity, the rate of decay:

- a. Can be increased by magnetic field
- b. Can be increased by electric field
- c. Can be decreased by magnetic field
- d. Is not effected by electric or magnetic field

Q.179 Equation $4\text{}^1_1\text{H} \longrightarrow \text{}^4_2\text{He} + 2\text{e}^+ + 26\text{ M eV}$ represents

- a. Fission
- b. β -decay
- c. γ -decay
- d. Fusion

Q.180 Half-life of iodine-131 is 8 days. If 20mg is present initially, how much iodine is left behind after 2 half-lives?

- a. 10 mg
- b. 5 mg
- c. 2.5 mg
- d. 1.25 mg



NMDCAT

SUPER FINAL PAPER-5

Total MCQs: 200

Max. Marks: 200

ENGLISH

SPOT THE ERROR:

In the first type of sentences, some segments of each sentence are underlined. Your task is to identify that underlined segment of the sentence, which contains the mistake that needs to be corrected.

- Q.181** Kiyazim with some undefeated remnants of the Ottoman Army, began to obstruct the
a. b. c.

Allied officers, refused to disband his men. **D-refusing**
d.

- Q.182** Over-crowding, un-cleanliness, over-heat and unhealthy conditions weakened the insects
a.

and made them more liable to the disease. **A- over-heating**
b. c. d.

- Q.183** It has estimated that before Pasteur came to the rescue, France had lost forty million
a. b. c.

francs through silkworm disease. **A- has been estimated**
d.

- Q.184** Overcoming his dislike of seeing suffering, he visited hospitals, collecting infectious
a. b.

matter and identifying the germs associated to various diseases. **D-with**
c. d.

- Q.185** I had my hair cut off and sold it. You won't care, do you? My hair grows very fast. It's
a. b. c.

Christmas, Jim. Let's be happy. **B-will you**
d.

- Q.186** The news spread like fire in the neighborhood. Mr. Hubert also informed. He was in
a. b. c. d.

triumph. **C-was also informed**

- Q.187** Then my father started to move slowly up the path again, supporting with his cane. I
a. b. a.

followed at his heels. **C-supporting himself**
d.

- Q.188** For although the evening air was no longer black and thick, but a clear blue, everything
a. b. c.

else –trees, buildings, bushes – were gone under the moving brown masses. **D-was**
d.

CORRECTION:

In each of the following questions, four alternative sentences are given. Choose the CORRECT one and fill the Circle corresponding to that letter in the MCQ Response Form.

Q.189

- a. Pasteur imparted his discoveries to the English brewers as well as to **French**.
b. Pasteur imparted his discoveries to the English brewers **as well as French**.
c. Pasteur imparted his discoveries to the English brewers **as well as the French**.
d. **Pasteur imparted his discoveries to the English brewers as well as to the French.**

Q.190

- a. The surgeon's problem was the same as **of a physician** treating disease.
b. The surgeon's problem was the same **as a physician** treating disease.
c. The surgeon's problem was the same as **that of a physician's** treating disease.
d. **The surgeon's problem was the same as that of a physician treating disease.**



Q.191

- a. The son **was** fortunately possessed forbears of character and strength.
- b. The son was fortunate **to possess** forbears of character and strength.
- c. The son fortunately **possessed of** forbears of character and strength.
- d. **The son was fortunate in possessing** forbears of character and strength.

Q.192

- a. Jim **lacked of** good eyesight, so he had to wear glasses that corrected his vision.
- b. Jim was **lacking good eyesight**, so he had to wear glasses that corrected his vision.
- c. **Jim lacked good eyesight, so he had to wear glasses that corrected his vision.**
- d. Jim **lacked in** good eyesight, so he had to wear glasses that corrected his vision.

Q.193

- a. **A few moments later, she went back into the kitchen to make the salad.**
- b. A few moments later, she went back **in** the kitchen to make the salad.
- c. **Few** moments later, she went back into the kitchen to make the salad.
- d. A few moments later, she went back into the kitchen **for making** the salad.

Q.194

- a. "I'll get **it**. **Norma called from the kitchen.**" Arthur was in the living room, reading.
- b. I'll get it," Norma called from the kitchen. Arthur was in the living **room reading**.
- c. **I'll get it," Norma called from the kitchen. Arthur was in the living room, reading.**
- d. "I'll get **it**", Norma called from the kitchen. Arthur was in the living room, reading.

Directions:

In each question in the following, four alternative sentences are given. Choose the CORRECT NARRATION.

Q.195 **The manager said to him, 'Why didn't you attend the meeting yesterday?'**

- a. The manager enquired him **why did not he attend** the meeting the day before.
- b. The manager asked him why **he did not attend** the meeting the previous day.
- c. **The manager asked him why he had not attended the meeting the day before.**
- d. The manager enquired him **that** why had not he attended the meeting **yesterday**.

Q.196 **I will never forget this experience.**

- a. This experience **will never forget** by me.
- b. This experience will never **forgotten** by me.
- c. This experience **will be never** forgotten by me.
- d. **This experience will never be forgotten by me.**

Sentence Completion:

Fill in the blanks with appropriate word.

Q.197 **Once the fire was stable, he returned to his spot, _____ deeply, and went to sleep.**

- a. Yawned
- b. Sneezed
- c. Hiccuffed
- d. Belched

Q.198 **Female dogs sometimes _____ their puppies by nipping on their ears.**

- a. Behold
- b. Hatch
- c. Fetch
- d. Scold

Synonyms

Choose the word that is most nearly **SIMILAR** in meaning to the word in capital letters.

Q.199 **LABRYNTH**

- a. Convolution
- b. Convulsion
- c. Homogeneity
- d. Mutiny

Antonyms

Choose the word **OPPOSITE** in meaning to CAPITALIZED word given above.

Q.200 **NAÏVE**

- a. Inimical
- b. Susceptible
- c. Cynical
- d. Ostensible